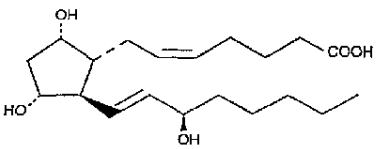
Product Information

15(R)-Prostaglandin $F_{2\alpha}$

Catalog No. 16740

CAS Registry No: 37658-84-7
CA Index Name: Prosta-5,13-dien-1-oic acid, 9,11,15-trihydroxy-, (5Z,9α,11α,13E,15R)-
Synonyms: 15-*epi* Prostaglandin $F_{2\alpha}$
MF: $C_{20}H_{34}O_5$
FW: 354.5
Purity: ≥98%
Stability: ≥1 year at -20°C
Supplied as: A solution in methyl acetate



Laboratory Procedures

15(R)-Prostaglandin $F_{2\alpha}$ (15(R)-$PGF_{2\alpha}$) is the C-15 epimer of the naturally occurring mammalian hormone $PGF_{2\alpha}$, which has the 15(S) configuration. For long term storage, we suggest that 15(R)-$PGF_{2\alpha}$ be stored as supplied at -20°C. It will be stable for at least one year.

15(R)-$PGF_{2\alpha}$ is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide purged with an inert gas can be used. The solubility of 15(R)-$PGF_{2\alpha}$ in these solvents is at least 100 mg/ml. 15(R)-$PGF_{2\alpha}$ is stable for at least six months in these solvents if stored at -20°C.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. If an organic solvent-free aqueous solution of 15(R)-$PGF_{2\alpha}$ is needed, it can be prepared by evaporating the methyl acetate and directly dissolving the neat oil in aqueous buffers. The solubility of 15(R)-$PGF_{2\alpha}$ in PBS (pH 7.2) is about 10 mg/ml. To obtain higher aqueous concentrations, we suggest using basic buffers. Store aqueous solutions of 15(R)-$PGF_{2\alpha}$ on ice and use within 12 hours of preparation. Although the aqueous solutions of 15(R)-$PGF_{2\alpha}$ may be stable for more than 12 hours, we strongly recommend using a fresh preparation each day.

15(R)-$PGF_{2\alpha}$ has only 25% of the potency of $PGF_{2\alpha}$ in hamster antifertility studies.[1] This may be due to the near-loss of affinity to FP receptors. Compared to $PGF_{2\alpha}$, 15(R)-$PGF_{2\alpha}$ has a binding affinity of 6.7 % to ovine luteal cell receptors.[2] Similarly, the binding affinity to rat vascular smooth muscle cells is negligible as compared to $PGF_{2\alpha}$.[3]

References

1. Miller, W.L. and Sutton, M.J. Relative biological activity of certain prostaglandins and their enantiomers. *Prostaglandins* **11,** 77-84 (1976).
2. Balapure, A.K., Rexroad, Jr.,C.E., Kawada, K., *et al.* Structural requirements for prostaglandin analog interaction with the ovine corpus luteum prostaglandin $F_{2\alpha}$ receptor. *Biochem. Pharmacol.* **38,** 2375-2381 (1989).
3. Hanasaki, K., Kishi, M., and Arita, H. Phorbol ester-induced expression of the common, low-affinity binding site for primary prostanoids in vascular smooth muscle cells. *J. Biol. Chem.* **265,** 4871-4875 (1990).

CAUTION
For laboratory research use only. Not for human or veterinary use.

MATERIAL SAFETY DATA
This material may or may not be hazardous. It should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent under separate cover to the MSD supervisor at your institution.

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